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From P. W. Hart

# FACTS CONCERNING VACCINATION, AND SANITARY RULES TO BE OBSERVED DURING PREVALENCE OF SMALLPOX.

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*Circular of the State Board of Health.*

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TO THE PUBLIC:

At a regular meeting of the State Board of Health, held in this city January 16th, 1880, the President and Secretary were directed to issue a circular, whenever, in their judgment, the presence of smallpox in the State seemed to demand it, impressing upon citizens the importance of vaccination, and urging its general adoption. Cases of smallpox had then recently occurred in the metropolis of the State, and in or near some other neighboring cities; and, although the disease had nowhere reached the measure of an epidemic, and there was no occasion for immediate alarm, it seemed the part of prudence to take early warning and prepare for its possible more general prevalence. The constant communication going on between the City of San Francisco and the interior of the State, favored at least a liability that the citizens of the latter might contract disease and convey it to their homes.

The circular issued at that time is applicable to the present. It read as follows:

"It has been recognized as a part of the history of smallpox that it occurs at certain intervals, at periods not absolutely accurate or well defined, indeed, but sufficiently distinct to attract attention. It is probable that this periodicity is due to changes taking place in the population more than to any inherent law of the disease. During the prevalence of an epidemic of smallpox, almost every one, under the influence of fear or by force of municipal law, is sooner or later

subjected to vaccination, and upon many of those previously vaccinated, the operation is repeated. Only the unprotected are attacked, and the epidemic dies out at length for want of fuel. A period of rest ensues, during which a certain proportion of adults who have been vaccinated in youth acquire renewed susceptibility, and others have been gradually but continuously added to the population by birth or immigration who have never had the disease nor been vaccinated. The fertility of the soil is renewed, ready for the reception and propagation of the germs whenever accidentally introduced.

"We, in California, have passed through one of these periods of rest. Numbers have been added to the population of both city and country, and inasmuch as where there is no cause for alarm the duty of vaccination is likely to be postponed, many of these are now unprotected; new material available for the disease has sprung up.

"While, therefore, the necessity of vaccination with those who have never been subjected to this safe and simple expedient is, in times of threatened danger, specially urgent, this necessity does not apply solely to them. It is a conceded fact in the history of vaccination that, in very many cases, the immunity it affords is only limited, or for a time. Perfect while it lasts—as perfect, it is believed, as a previous attack of smallpox itself—the duration of the insusceptibility varies with different individuals. Though in some instances it is unquestionably permanent through life, it is safe to say that re-vaccination should always be tried after the expiration of eight or ten years, or, otherwise, whenever during the prevalence of smallpox it is desirable to be assured of protection. By the observance of this rule, and the general adoption of primary vaccination in youth, it is equally safe to say that one of the most loathsome diseases which afflict mankind may be effectually robbed of its terrors.

"In thus urgently recommending a general resort to vaccination as a means of protection against smallpox, the State Board of Health cannot too strongly deprecate the careless and unscientific manner in which it is often performed and its results determined. In very many cases such vaccinations serve only to deceive through a false sense of security.

"Attention is respectfully called to the following general rules, the value of which has been demonstrated by the experience of the medical profession:

"I. The virus used should be of known purity. Whether in the form of the dried crust, or as lymph, certain precautions are necessary for the safe and effectual performance of the operation. This it should be the duty of the family physician to attend to. Self-vaccination, or vaccination performed by unprofessional friends, unqualified to distinguish the *true* sore or vesicle from that which is spurious, affords but slight protection against smallpox. It is at least uncertain. It may be genuine, or it may not. It is to this cause that so many reputed failures in the conservative influence of vaccination are to be attributed, and that the process itself has been regarded by many with suspicion and distrust.

"2. Re-vaccination during the prevalence of an epidemic, or after the lapse of eight or ten years from the primary operation, is considered necessary. A scar upon the arm, the result of a previous vaccination, affords no certain evidence that the protective influence is not lost. It has been observed that vaccination performed during the active period of an epidemic is apt to be more severe in its effects than under other atmospheric conditions.

"3. Virus obtained from the arms of re-vaccinated persons should never be employed. There is no evidence that it possesses any protective power.

"4. With care in the selection of virus, the danger of contracting disease thereby is reduced to a minimum. It is pretty certain that only *one* disease ever has been introduced by vaccination, and with ordinary care this is impossible. It is better to avoid virus taken from adults.

"5. The dangers attributable to the operation itself are too light to weigh against its positive benefits. It has been estimated that one serious accident may occur in one case in 100,000; certainly not more frequently than would be expected from any similar wound or abrasion of the skin. Properly done, with due precaution as to the health and vigor, and the age of the subject, and the source of the virus used, it may be confidently affirmed to be altogether without danger.

"6. No so-called vaccination which does not result in what is known as a characteristic sore or vesicle, pursuing regular changes or periods of development, is safely to be relied upon. Not infrequently the sore upon the arm arising from the insertion of worthless virus is even more severe than that resulting from the genuine lymph.

"There is no other method than that universally adopted of making the insertion upon the abraded skin, or beneath the skin of some portion of the body, which can, with any degree of safety, be relied upon.

"7. It is an interesting fact in the history of contagious diseases, and one of great practical importance, that a certain more or less definite time intervenes between the reception of the contagion and its manifestation in the body of the individual affected—a period of latency, called the period of incubation—during which certain processes are going on in the system which are somehow preparatory to the development of the disease.

"In smallpox, this period may be stated, in a general way, to be twelve days for the beginning of fever, or fourteen for that of the eruption; in the vaccine disease or cowpox, it is three or four; and such is the protective or antagonistic power of the latter, that if its virus or contagion be inserted even after exposure to smallpox, its shorter incubative period enables it to anticipate the other, and, if it do not altogether prevent it, to induce such a deviation from its regular course as to essentially modify it and deprive it of its greatest danger. Hence the importance of an early vaccination after exposure to smallpox.

"8. Bovine virus, or that taken directly from the cow, is fashionable, and, in consequence of the excellent arrangements which have been made by different parties, it can at all times be obtained fresh and pure. It is reliable, and it is to be recommended. Yet, there is strong reason to believe, and such is the opinion of the highest authorities on this subject, that *humanized* virus, obtained from the arm of a healthy child, loses none of its protective efficacy, even when propagated through generations."

During the past month, cases of smallpox have occurred in different sections of the State, having been imported by immigrants upon the cars of the Central Pacific Railroad. The great prevalence of smallpox in Chicago, and the constant communication with that city by rail, afford easy means for the conveyance of the specific poison to California. We have, in fact, illustrations of this influence in the instances alluded to—infected persons having been received into the cars at that city, thus communicating the disease to their fellow passengers; or, parties having been exposed to smallpox there, become its victims after their arrival here.

The precautions indicated in the above circular of the State Board of Health receive, therefore, new force at this time, and the Board cannot too strongly urge upon all who have not been vaccinated, or who have not been *re-vaccinated* since the age of fourteen or fifteen years, to seek the protection which so simple and harmless an expedient affords. It should be remembered that even the mildest case of varioloid is capable, equally with the most severe one of genuine smallpox, of communicating the worst form of the disease.

Attention is called to the following sanitary rules to be observed during the prevalence of smallpox:

#### PRECAUTIONS AGAINST THE SPREADING OF SMALLPOX.

1. *Perfect isolation of the sick.* In cities, or where a suitable hospital has been provided, this is best secured by removal of the sick. In country districts, the end may be attained by allowing only nurses and attendants to visit the sick-room, and these to see no other persons during the continuance of their services as such, without having changed their clothes or subjecting them to thorough disinfection.

2. All persons exposed to the contagion should be *immediately re-vaccinated*, even though the experiment may have been unsuccessfully tried only a short time previously. Possibly, the vaccination may have been imperfect, or the virus inert.

3. After recovery from smallpox, the patient should not be permitted to go out, or to communicate with other persons, until the crusts have fallen off, and his clothing has been renewed or disinfected.

4. After death from smallpox, the beds and bed-clothes, carpets, curtains, and other articles in the room, should be destroyed, or disinfected by the method to be hereafter directed.

Inasmuch as the bodies of those dead by smallpox are still infectious, they should be disinfected, and public funerals should be avoided.

5. *Cleanliness in and about the dwelling*, and ventilation of the latter, afford efficient aids towards the success of other measures to prevent the spread of this and other contagious diseases.

#### RULES FOR DISINFECTION. \*

The distinction between DISINFECTANTS and DEODORIZERS should be borne in mind. The former neutralize the germs of contagious or infectious diseases; the latter remove or destroy smells, or substitute one odor for another, and may or may not *disinfect*. The former are therefore to be preferred.

The DISINFECTANTS proper to be used vary with the object to be attained, or the articles to be disinfected.

#### DISINFECTION OF THE ARTICLES ABOUT THE PATIENT.

Disinfect the sheets, towels, handkerchiefs, blankets, and other articles used about the patient, as soon as removed, by immersing them in a vessel or tub containing half a pound of sulphate of zinc (white vitriol), or half an ounce of chloride of zinc, or four ounces of the sulphate of zinc combined with two ounces of common salt to each gallon of boiling water. Boil for half an hour. The articles should be placed in the solution before being removed from the room. The discharges from the patient should be received in a vessel containing one of the above solutions, or a solution of half a pound of sulphate of iron (copperas), in one quart of water. The bodies of the dead may be disinfected by washing them with the solution of zinc and salt of double strength, and wrapping them in a sheet saturated with the same solution, or the zinc and carbolic acid solution mentioned above. It is advised, also, to sprinkle the floor with a solution of carbolic acid (one ounce) and sulphate of zinc (six ounces) to one gallon of water. Neither the sulphate of zinc solutions nor that of the chloride of zinc will stain or injure ordinary articles of clothing. These may, therefore, be used for

#### THE DISINFECTION OF THE CLOTHING.

Clothing which will not admit of being boiled, and which is too valuable to destroy, may be sprinkled with one of the last named solutions, or the latter may be applied by means of a sponge, the articles themselves being subsequently exposed to the open air.

Other clothing, as silks, furs, woolen goods, and the like, to which the above means are not applicable, should be suspended in the room during its disinfection by the method immediately to be explained, and afterwards exposed to the open air. Furniture, pillows, mattresses, window curtains, and carpets, should at the same time be exposed to the process. It is advised that the carpets should be

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\*The rules for disinfection are substantially those recommended by the NATIONAL BOARD OF HEALTH.

fumigated on the floor, and the mattresses ripped open for more thorough exposure.

DISINFECTION OF THE HOUSE OR INFECTED ROOM.

For this purpose, sulphur is used. The rule is to take roll sulphur broken into small pieces, place it on a metallic dish resting upon bricks set in a tub containing water, or upon other supports laid across the tub, pour a little alcohol upon the sulphur, and ignite it. Then immediately leave the room. Let the doors and windows be tightly closed, and kept so for half a day. Then ventilate the apartment for several hours. One pound of sulphur is advised for one thousand feet of cubic air space, The furniture and paint about the room may be subsequently washed and the walls whitened.

Other substances have been advised as disinfectants for the various purposes above alluded to, but those mentioned are cheap, effective, and within reach of all.

F. W. HATCH, *FWH*  
Secretary State Board of Health.

SACRAMENTO, CAL., October 24, 1881.

H. GIBBONS, SR., M. D.,  
President State Board of Health.

the first of the year, the weather was  
very cold, and the snow was  
deep. The children were  
very happy to see the  
snow. They had been  
told that it would come.  
They had been told that it  
would be a very big snow.  
They had been told that it  
would be a very big snow.  
They had been told that it  
would be a very big snow.

